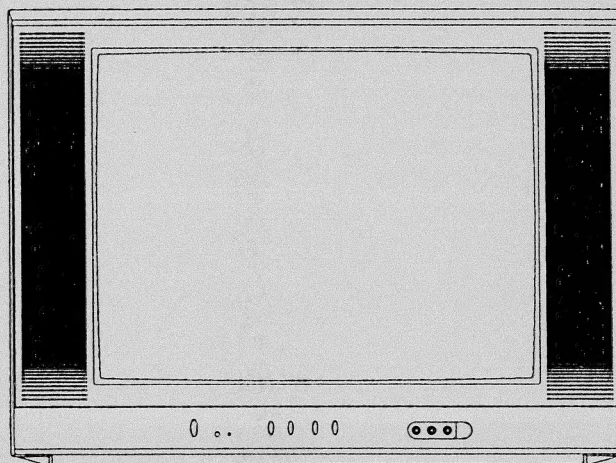


SERVICE MANUAL

ORION

TV-5532SI

COLOR TELEVISION RECEIVER



**ORIGINAL
CHASSIS CODE A**

Best. Nr. SM5532

Design and specifications are subject to change without notice.

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.

Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a \triangle mark, the designated parts must be used.

4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.

Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.

Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

(INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the external exposure metal [Note 2] should be more than 1M ohm by using the 500V insulation resistance meter [Note 1].
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]

If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]

External exposure metal: Antenna terminal

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the CHASSIS CODE.)

1. MODEL NUMBER and CHASSIS CODE
You can find it in the back of your unit.
2. PART NO. and DESCRIPTION
You can find it in your SERVICE MANUAL.

IMPORTANT

Inferior silicon grease can damage IC's and transistors.
When replacing an IC's or transistors, use only specified silicon grease (YG6260M).
Remove all old silicon before applying new silicon.

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GENERAL SPECIFICATIONS

G-1	TV System	CRT	CRT Size / Visual Size	21 inch / 544.5mmV
			CRT Type	Normal
			Deflection	90 degree
			Magnetic Field BV/BH	0.45G/0.18G
			Color System	PAL
			Speaker	2 Speaker
			Position	Front
			Size	1.8 x 3.9 inch
			Impedance	8 ohm
			Sound Output	MAX 5.0±5.0 W
G-2	Tuning System	Broadcasting System	10%(Typical)	4.0±4.0 W
			DDR SECAM	No
			NTSC3.58(AV)+NTSC4.43	No
			PAL60Hz	Yes
			Broadcasting System	CCIR System B/G
			Tuner and Receive CH	1Tuner
			Destination	CCIR Hyper
			Tuning System	F-Synth
			Input Impedance	VHF/UHF 75 ohm
			CH Coverage	E2 - E4, X - Z-2, S1 - S10, E5 - E12, S11 - S41, E21 - E69
G-3	Power	Intermediate Frequency	Picture(FP)	38.90MHz
			Sound(FS)	33.4MHz
			FP-FS	5.5MHz
			Auto Tuning Method	C.C.I.R CH PLAN
			Preset CH	80
			Stereo/Dual TV Sound	Yes
			Tuner Sound Muting	Yes
			Power Source	AC
			DC	230V AC 50Hz
			Power Consumption	at AC
G-4	Regulation	Protector	Stand by (at AC)	60 W at AC 230 V 50 Hz
			Per Year	6 W at AC 230 V 50 Hz
				- kWh/Year
			Power Fuse	Yes
			Safety	CE
			Radiation	CE
			X-Radiation	PTB
			Operation	+5°C ~ +40°C
			Storage	-20°C ~ +60°C
				Less than 80% RH
G-5	Temperature	Operating Humidity		
G-6	On Screen Display	Menu	Menu Type	Character
			Picture	Yes
			Contrast	Yes
			Brightness	Yes
			Colour	Yes
			Tint	No
			Sharpness	Yes
			Audio	No
			Bass	No
			Treble	No
G-7			Balance	No
			BBE On/Off	No
			Stable Sound On/Off	No
			CH Tuning	Yes
			Matual	Yes
			Auto	Yes
			CH Allocation	Yes
			Language	Yes
			Clock Set	No
			On/Off Timer Set	No
G-8			Pin Code Registration	No
			Nicam Auto Off	No
			Colour System	No
			Sound System	No
			AV2 Output Source	No
			Control Level	Yes
			Volume	Yes
			Brightness	Yes
			Contrast	Yes
			Colour	Yes
G-9			Tint (NTSC Only)	No
			Sharpness	Yes
			Tuning	Yes
			Bass	No
			Treble	No
G-10	Remote Control		Unit	RC-GE
			Glow in Dark Remocon	No
			Format	NEC
			Custom Code	80-83 h
			Power Source	3V
			Voltage(D.C)	UM-4 x 2 pcs
			UM size x pcs	31 Keys
			Total Keys	Yes
			Keys	Power (Stand By)
				Yes
G-11	Features		1	Yes
			2	Yes
			3	Yes
			4	Yes
			5	Yes
			6	Yes
			7	Yes
			8	Yes
			9	Yes
			0 / AV	Yes
			CH Up	No
			CH Down	No
			Volume Up / +	Yes
			Volume Down / -	Yes
			Quick View	No
			Sleep	Yes
			Info (CH Call)	Yes
			Normal	No
			Menu	Yes
			Enter	Yes
			Mute	Yes
			Fine Tuning +	No
			Fine Tuning -	No
			Tone 1/2	No
			TTEXT Keys	TEXT / MIX / TV
				Yes
			CH Up / Page Up	Yes
			CH Down / Page Down	Yes
			Red	Yes
			Green	Yes
			Yellow / Fine Tuning -	Yes
			Cyan / Fine Tuning +	Yes
			F/T/B(Expand) / Normal	Yes
			Reveal / Skip	Yes
			Display Cancel	Yes
			Reset	No
			Reset / Tone 1/2	Yes
			Hold / Status	Yes
			Sub Page / Quick View	Yes
				Yes
			Auto Degauss	Yes
			Auto Shut Off	Yes
			Canal+	No
			CATV	No
			Anti-theft	No
			Memory(Last CH)	Yes
			Memory(Last Volume)	Yes
			BBE	No
			Auto Search	Yes
			CH Allocation	Yes
			Channel Lock	No
			Just Clock Function	No
			Game Position	No

GENERAL SPECIFICATIONS

			Balance	No
			Back Light	No
			Nicam ST	No
			Tone 1/2	Yes
			Pin Code	No
			AV	Yes
			Skip	Yes
			Channel	Yes
			Hotel Lock	No
			Sleep Timer	Yes
G-8	OSD Language		Sound Mute	Yes
			English	French
			German	Spanish
			Italian	
G-9	Clock and Timer		Sleep Timer	Max Time
				120 Min
			On/Off Timer	Stop
				10 Min
			Wake Up Timer	Program(On Tim / Off Tim)
				No
			Timer Back-up (at Power Off Mode)	more than
				- Min Sec
G-10	Remote Control		Unit	RC-GE
			Glow in Dark Remocon	No
			Format	NEC
			Custom Code	80-83 h
			Power Source	3V
			Voltage(D.C)	UM-4 x 2 pcs
			UM size x pcs	31 Keys
			Total Keys	Yes
			Keys	Power (Stand By)
				Yes
			1	Yes
			2	Yes
			3	Yes
			4	Yes
			5	Yes
			6	Yes
			7	Yes
			8	Yes
			9	Yes
			0 / AV	Yes
			CH Up	No
			CH Down	No
			Volume Up / +	Yes
			Volume Down / -	Yes
			Quick View	No
			Sleep	Yes
			Info (CH Call)	Yes
			Normal	No
			Menu	Yes
			Enter	Yes
			Mute	Yes
			Fine Tuning +	No
			Fine Tuning -	No
			Tone 1/2	No
			TTEXT Keys	TEXT / MIX / TV
				Yes
			CH Up / Page Up	Yes
			CH Down / Page Down	Yes
			Red	Yes
			Green	Yes
			Yellow / Fine Tuning -	Yes
			Cyan / Fine Tuning +	Yes
			F/T/B(Expand) / Normal	Yes
			Reveal / Skip	Yes
			Display Cancel	Yes
			Reset	No
			Reset / Tone 1/2	Yes
			Hold / Status	Yes
			Sub Page / Quick View	Yes
				Yes
G-11	Features		Auto Degauss	Yes
			Auto Shut Off	Yes
			Canal+	No
			CATV	No
			Anti-theft	No
			Memory(Last CH)	Yes
			Memory(Last Volume)	Yes
			BBE	No
			Auto Search	Yes
			CH Allocation	Yes
			Channel Lock	No
			Just Clock Function	No
			Game Position	No

GENERAL SPECIFICATIONS

		CH Label		No
		VM Circuit		No
		Full OSD		No
		Unitext		Yes
		Fastext		No
		Top Text		No
		Premiere		No
		Comb Filter		No
		Lines		
		Auto CH Memory		No
		Stable Sound		No
		Auto Set Up		No
		FBT Leak Test Protect		No
		Power ON Memory		Yes
		Hotel Lock		No
G-12	Accessories	Owner's Manual	Language	German
			w/Guarantee Card	Yes
		Remote Control Unit		Yes
		Rod Antenna		No
		Poles		Pole
		Terminal		type
		Loop Antenna		No
		Terminal		-
		U/V Mixer		No
		DC Car Cord (Center+)		No
		Guarantee Card		No
		Warning Sheet		No
		Circuit Diagram		No
		Antenna Change Plug		No
		Service Facility List		No
		Important Safeguard		No
		Dew/AHC Caution Sheet		No
		AC Plug Adapter		No
		Quick Set-up Sheet		No
		Battery		Yes
		UM size x pcs		UM-4 x 2 pcs
		OEM Brand		No
		AC Cord		No
		AV Cord (2Pin-1Pin)		No
		Registration Card		No
		300 ohm to 75 ohm Antenna Adapter		No
G-13	Interface	Switch	Front	Power (Tact Sw)
				System Select
		Main Power SW		Yes
		Sub Power		No
		Channel Up		Yes
		Channel Down		Yes
		Volume Up		Yes
		Volume Down		Yes
		Rear		AC/DC
				TV/CATV Selector
				Degauss
				Main Power SW
		Indicator		Power
				Stand-by
				On Timer
				No
		Terminals		Front
				Video Input
				Audio Input
				RCA x1
				RCA x2
				Other Terminal
				No
				Video Input(Rear1)
				No
				Video Input(Rear2)
				No
				Audio Input(Rear1)
				No
				Audio Input(Rear2)
				No
				Video Output
				No
				Audio Output
				No
				Euro Scart(21Pin)
				Yes (x1)
				Component Input
				No
				Diversity
				No
				Ext Speaker
				No
				DC Jack 12V(Center +)
				No
				VHF/UHF Antenna Input
				D Type
				No
		AC Outlet		No
G-14	Set Size	Approx.	W x D x H (mm)	580 x 492 x 447
G-15	Weight	Net (Approx.)		21.0kg (46.3 lbs)
		Gross (Approx.)		23.8kg (52.5 lbs)
G-16	Carton	Master Carton		No
		Content		== Sets

GENERAL SPECIFICATIONS

		Material		== /--
		Dimensions W x D x H(mm)		" x " x "
		Description of Origin		No
		Yes		
		Material		Double/Full Color
		Dimensions W x D x H(mm)		658 x 575 x 544
		Design		As per Buyer's
		Description of Origin		No
		Drop Test		Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces
		Height (cm)		46
		Container Stuffing		288 Sets/40' container
		Cabinet		Cabinet Front
				PS 94 HB
				Cabinet Rear
				PS 94 HB
				Holder
				PS 94V0 NON-DECABROM
				Non-Halogen Demand
				No
				Eyelet Demand
				No
G-17	Material			

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

- ★ After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
- ★ Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap. (Refer to Fig. 1-1.)
Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground. While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver.
A cracking noise will be heard as the voltage is discharged.

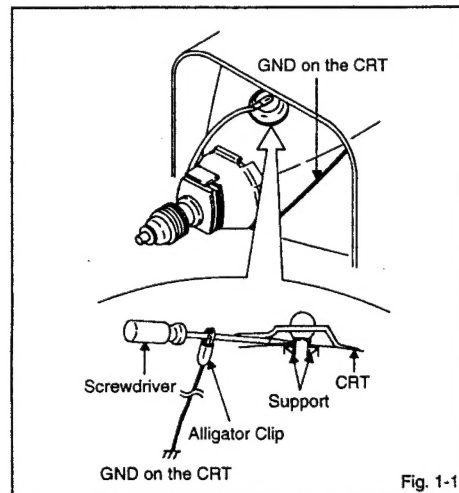


Fig. 1-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. (Refer to Fig. 1-2.)

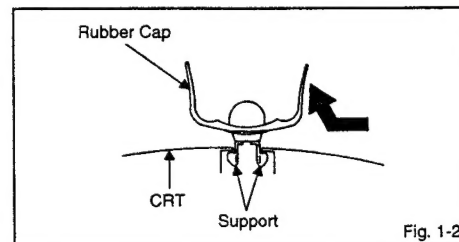


Fig. 1-2

3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

1. Clean the spot where the cap was located with a small amount of alcohol. (Refer to Fig. 1-3.)

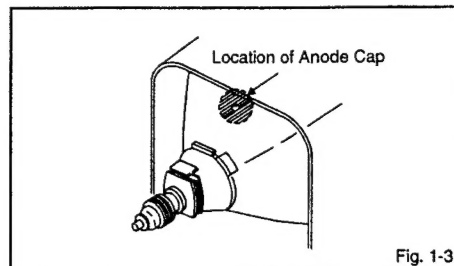


Fig. 1-3

NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. (Refer to Fig. 1-4.)

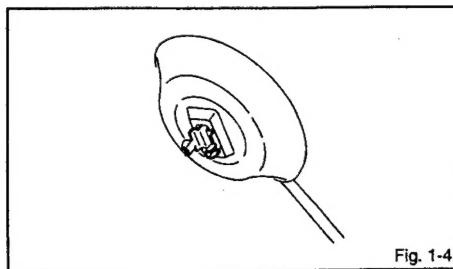


Fig. 1-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in Fig. 1-5.

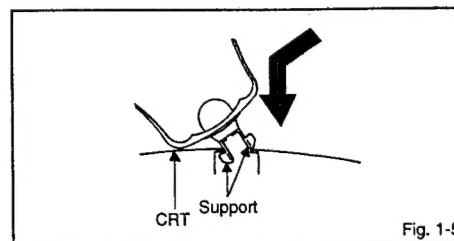


Fig. 1-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

DISASSEMBLY INSTRUCTIONS

2. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

1. Put the Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. (Refer to Fig. 2-1.)

NOTE

Masking is carried out on all the parts located within 10 mm distance from IC leads.

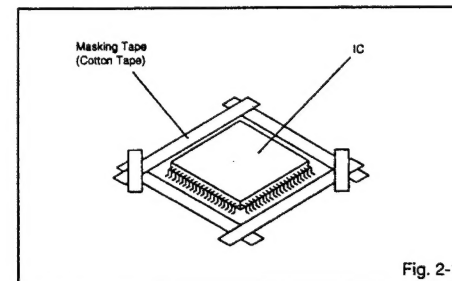


Fig. 2-1

2. Heat the IC leads using a blower type IC desoldering machine. (Refer to Fig. 2-2.)

NOTE

Do not add the rotating and the back and forth directions force on the IC, until IC can move back and forth easily after desoldering the IC leads completely.

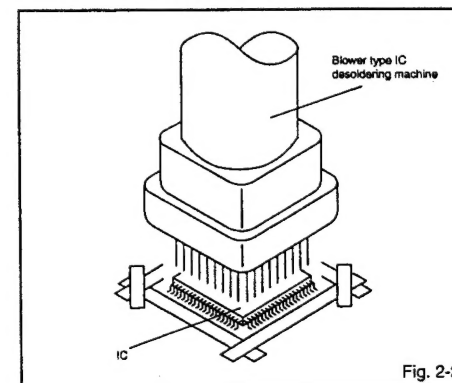


Fig. 2-2

3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. (Refer to Fig. 2-3.)

NOTE

Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.

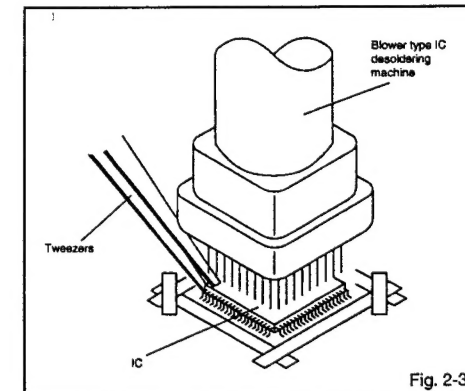


Fig. 2-3

4. Peel off the Masking Tape.

5. Absorb the solder left on the pattern using the Braided Shield Wire. (Refer to Fig. 2-4.)

NOTE

Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.

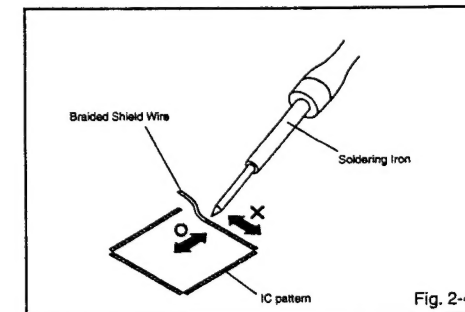


Fig. 2-4

DISASSEMBLY INSTRUCTIONS

INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. (Refer to Fig. 2-5.)

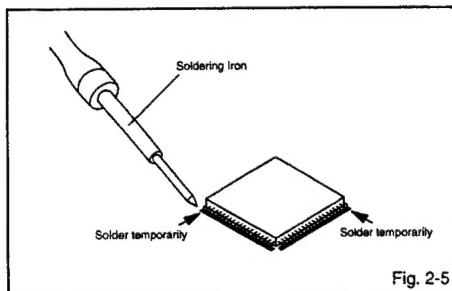


Fig. 2-5

2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. (Refer to Fig. 2-6.)

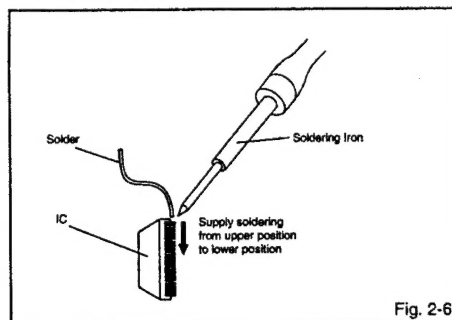


Fig. 2-6

3. Absorb the solder left on the lead using the Braided Shield Wire. (Refer to Fig. 2-7.)

NOTE

Do not absorb the solder to excess.

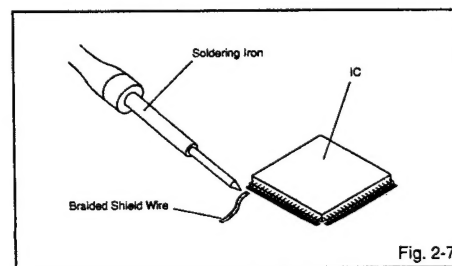


Fig. 2-7

4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. (Refer to Fig. 2-8.)

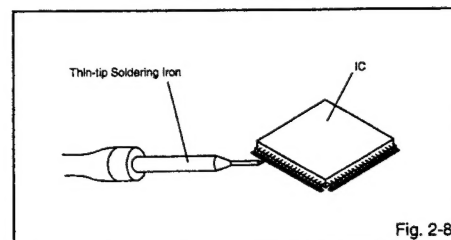


Fig. 2-8

5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass. Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

NOTE

When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, be always sure to replace the IC in this case.

ELECTRICAL ADJUSTMENTS

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
- When you exchange IC and Transistor for a heat sink, apply the silicon grease (YG6260M) on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor.)

Prepare the following measurement tools for electrical adjustments.

1. Oscilloscope
2. Digital Voltmeter
3. Pattern Generator

On-Screen Display Adjustment

1. In the condition of NO indication on the screen. Press the VOL. DOWN button on the set and the Channel button (9) on the remote control for more than 2 seconds to appear the adjustment mode on the screen as shown in Fig. 1-1.

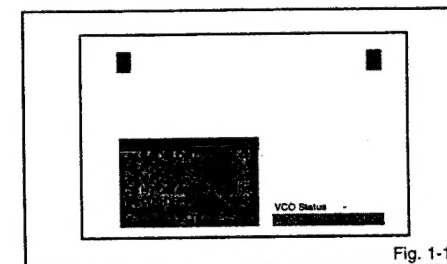


Fig. 1-1

2. Use the Channel UP/DOWN button or Channel button (0-9) on the remote control to select the options shown in Fig. 1-2.
3. Press the MENU button on the remote control to end the adjustments.

NO.	FUNCTION	NO.	FUNCTION
00	CUT OFF	20	TINT
01	RF AGC	21	SHARP
02	RF AGC GAIN	22	CONT CENT
03	R DRIVE	23	CONT MAX
04	R CUT OFF	24	CONT MIN
05	G DRIVE	25	COLOR CENT
06	G CUT OFF	26	COLOR MAX
07	B DRIVE	27	COLOR MIN
08	H POSI 50	28	M R CUT OFF
09	V POSI 50	29	M G CUT OFF
10	V POSI 60	30	M B CUT OFF
11	V SIZE 50	31	CVBS OUT
12	V SIZE 60	32	APR THR
13	VCO COARSE	33	BELL
14	VCO FINE	34	BANDPASS
15	-	35	H POSI OSD
16	-	36	V POSI OSD
17	BRIGHT CENT	37	H POSI TXT
18	BRIGHT MAX	38	V POSI TXT
19	BRIGHT MIN	39	H POSI 60

Fig. 1-2

2. BASIC ADJUSTMENTS

2-1: AGC VOLTAGE

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the UHF (63dB).
3. Connect the digital voltmeter between the pin 5 of CP101 and the pin 1 (GND) of CP101.
4. Activate the adjustment mode display of Fig. 1-1 and press the channel button (01) on the remote control to select "RF AGC".
5. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is $2.55 \pm 0.05V$.

2-2: CUT OFF

1. Place the set with Aging Test for more than 15 minutes.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of Fig. 1-1 and press the channel button (00) on the remote control to select "CUT OFF".
4. Adjust the Screen Volume until a dim raster is obtained.

2-3: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 10 minutes.
2. Receive the white 100% signal from the Pattern Generator.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of Fig. 1-1 and press the channel button (28) on the remote control to select "M R CUT OFF".
5. Using the VOL. UP/DOWN button on the remote control, adjust the M R CUT OFF.
6. Press the CH. UP/DOWN button on the remote control to select the "R DRIVE", "G DRIVE", or "M G CUT OFF".
7. Using the VOL. UP/DOWN button on the remote control, adjust the R DRIVE, G DRIVE, M G CUT OFF or M R CUT OFF.
8. Perform the above adjustments 6 and 7 until the white color is looked like a white.

2-4: FOCUS

1. Receive the monoscope pattern.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the Focus Volume until picture is distinct.

2-5: CONSTANT VOLTAGE

1. Place the set with Aging Test for more than 15 minutes.
2. Using the remote control, set the brightness and contrast to normal position.
3. Connect the digital voltmeter to TP501.
4. Set condition is AV MODE without signal.
5. Adjust the VR501 until the digital voltmeter is $117 \pm 1V$.

2-6: VERTICAL LINEARITY

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Adjust the VR420 until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

ELECTRICAL ADJUSTMENTS

2-7: HORIZONTAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of Fig. 1-1 and press the channel button (08) on the remote control to select "H POSI(50)".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.
5. Receive the monoscope pattern of NTSC.
6. Using the remote control, set the brightness and contrast to normal position.
7. Activate the adjustment mode display of Fig. 1-1 and press the channel button (39) on the remote control to select "H POSI(60)".
8. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

2-8: VERTICAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of Fig. 1-1 and press the channel button (11) on the remote control to select "V SIZE(50)".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes $8 \pm 3\%$.
5. Receive the monoscope pattern of NTSC.
6. Using the remote control, set the brightness and contrast to normal position.
7. Activate the adjustment mode display of Fig. 1-1 and press the channel button (12) on the remote control to select "V SIZE(60)".
8. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes $8 \pm 3\%$.

2-9: BRIGHT CENT

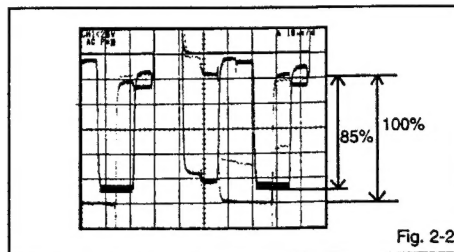
1. Place the set with Aging Test for more than 15 minutes.
2. Receive the monoscope pattern. (RF Input)
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of Fig. 1-1 and press the channel button (17) on the remote control to select "BRIGHT CENT".
5. Press the VOL. UP/DOWN button on the remote control until the GLAY SCALE 25% section become to be the half black.
6. Receive the monoscope pattern. (Audio Video Input)
7. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 3-5.

2-10: CONT CENT

1. Activate the adjustment mode display of Fig. 1-1 and press the channel button (22) on the remote control to select "CONT CENT".
2. Press the VOL. UP/DOWN button on the remote control until the cont cent step No. becomes "45".
3. Press the AV button on the remote control to set the AV mode. Then perform the above adjustments 1, 2.

2-11: COLOR CENT

1. Receive the color bar pattern. (RF Input)
2. Connect the oscilloscope to TP022.
3. Using the remote control, set the brightness, contrast and color to normal position.
4. Activate the adjustment mode display of Fig. 1-1 and press the channel button (25) on the remote control to select "COLOR CENT".
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 5 scales on the screen of the oscilloscope.
6. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to $85 \pm 10\%$ for the white level. (Refer to Fig. 2-2)
7. Receive the color bar pattern. (Audio Video Input)
8. Press the AV button on the remote control to set the AV mode. Then perform the above adjustments 2-6.



2-12: VCO COARSE/VCO FINE

1. Connect the oscillator (38.9MHz) to between the TP001 and the (GND) of TU001.
2. Activate the adjustment mode display of Fig. 1-1 and press the channel button (13) on the remote control to select "VCO COARSE".
3. Press the VOL. UP/DOWN button on the remote control until the "+" appear on the screen.
4. Press the CH UP button once to set to "VCO FINE" mode.
5. Press the VOL. UP/DOWN button on the remote control to select the 4 step down point from the upper limit on the "+".
(Example: In case of the "+" point 30-41, select 37.)

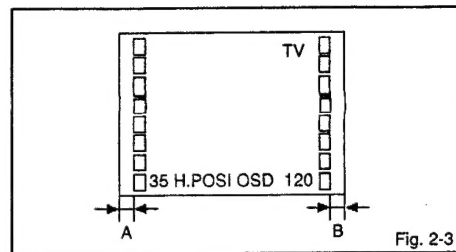
2-13: VERTICAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Adjust the VR401 until the horizontal line becomes fit to notch of the shadow mask.

2-14: OSD HORIZONTAL

1. Activate the adjustment mode display of Fig. 1-1.
2. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum.
(Refer to Fig. 2-3)

ELECTRICAL ADJUSTMENTS



2-15 : Confirmation of Fixed Value (Step No.)

Please check if the fixed values of the each adjustment items are set correctly referring below.

NO.	FUNCTION	RF	AV
02	RF AGC GAIN	00	00
04	R CUT OFF	00	00
06	G CUT OFF	00	00
09	V POSI 50	04	04
10	V POSI 60	03	03
18	BRIGHT MAX	25	25
19	BRIGHT MIN	03	03
20	TINT	45	45
21	SHARP	01	01
23	CONT MAX	55	55
24	CONT MIN	07	07
26	COLOR MAX	47	47
27	COLOR MIN	10	10
30	M B CUT OFF	127	127
31	CVBS OUT	31	31
32	APR THR	07	07
33	BELL	09	09
34	BANDPASS	06	06
35	H POSI OSD	120	120
36	V POSI OSD	49	49
37	H POSI TEXT	120	120
38	V POSI TEXT	57	57

ELECTRICAL ADJUSTMENTS

3. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. (Refer to Fig. 3-1)
If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

3-2: PURITY

NOTE

Adjust after performing adjustments in section 3-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

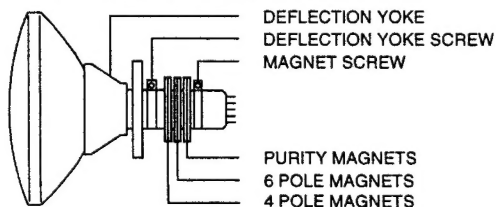


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. (Refer to Fig. 3-2-a)
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. (Refer to Fig. 3-2-b)

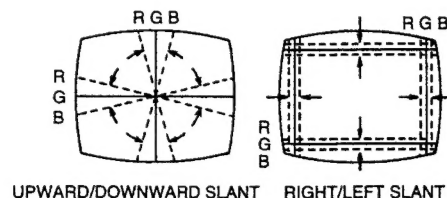


Fig. 3-2-a

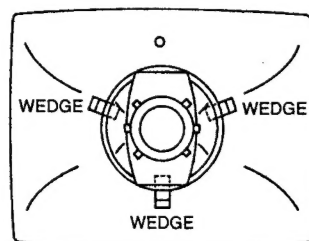


Fig. 3-2-b

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily. To enter the Service Mode, press both set key and remote control key for more than 2 seconds.

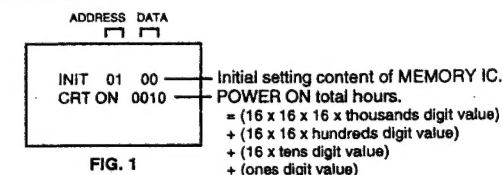
Set Key	Remocon Key	Operations
VOL. (-) MIN	0	Reset the user setting items (PICTURE, VOLUME and LANGUAGE) to the initial state for delivery.
VOL. (-) MIN	1	Initialization of the factory. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	6	POWER ON total hours is displayed on the screen. Refer to the "CONFIRMATION OF HOURS USED". Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
VOL. (-) MIN	8	Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

CONFIRMATION OF HOURS USED

POWER ON total hours can be checked on the screen. Total hours are displayed in 16 system of notation.

NOTE: If you set a factory initialization, the total hours is reset to "0".

1. Set the VOLUME to minimum.
2. Press both VOL. DOWN button on the set and Channel button (6) on the remote control for more than 2 second.
3. After the confirmation of using hours, turn off the power.



WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	---	00	5A	30	24	31	90	41	01	45	00	41	03	5C	5D	73
10	00	00	08	80	03	00	00	---	---	---	---	---	---	---	---	---

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control for more than 2 seconds.

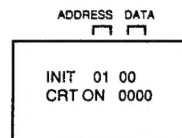


Fig. 1

3. ADDRESS is now selected and should "blink". Using the VOL. +/- button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using VOL. +/- button until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

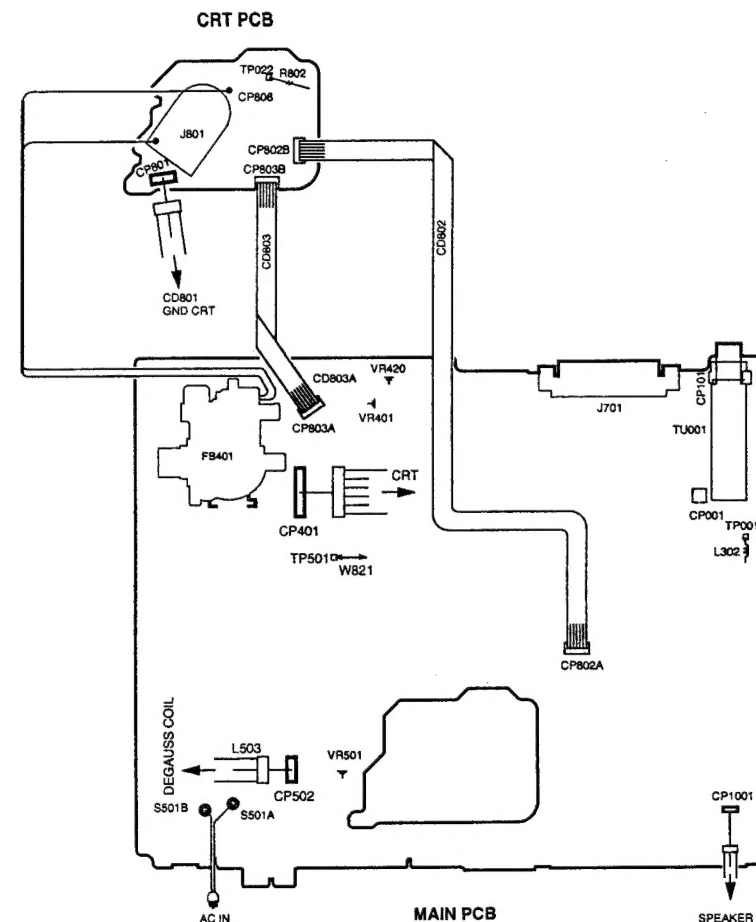
After the data input, set to the initializing of shipping.

9. Turn POWER on.
10. While holding down VOLUME button on front cabinet, press key 1 on remote control for more than 2 seconds.
11. After the finishing of the initializing of shipping, the unit will turn off automatically.

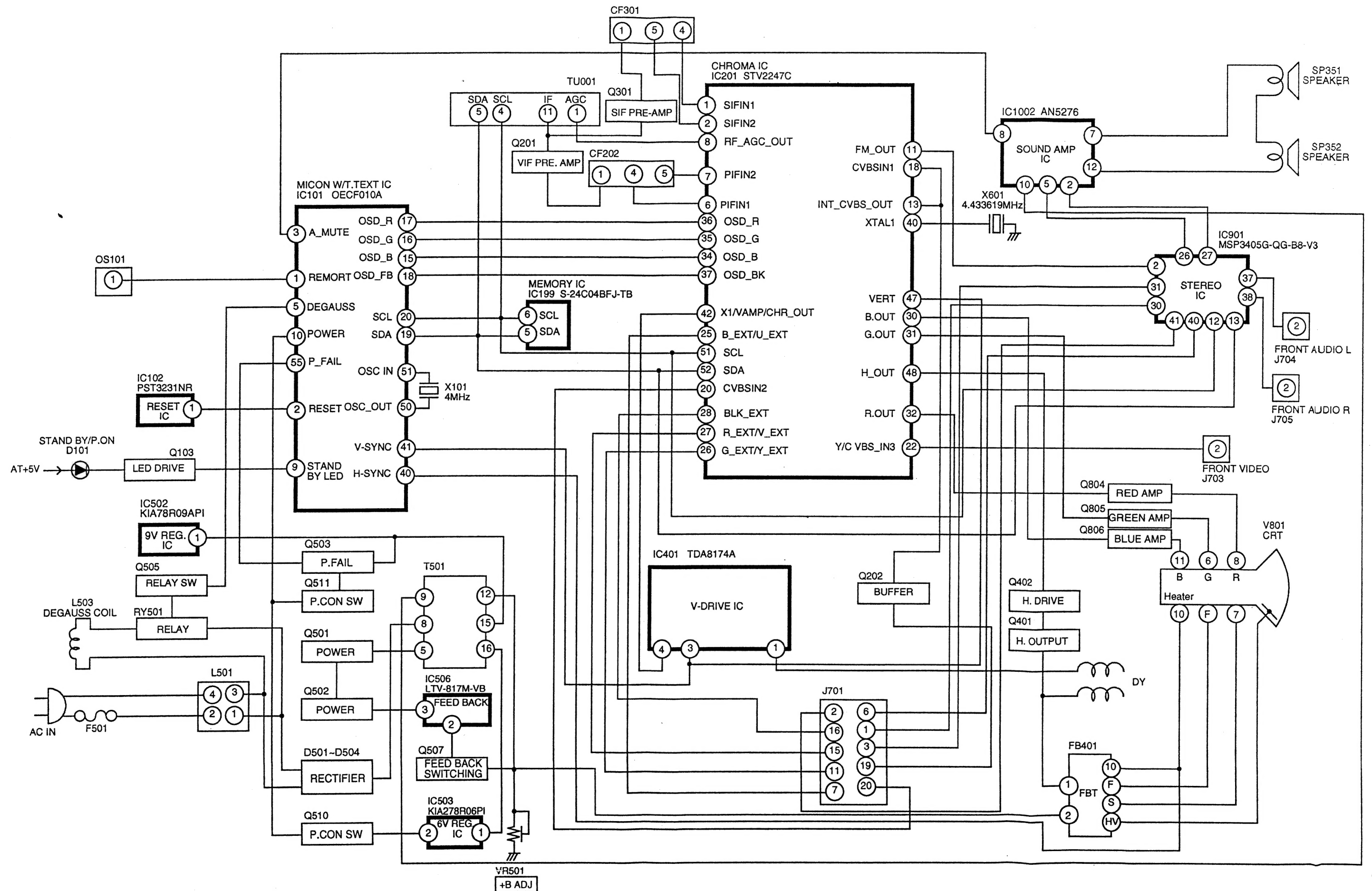
The unit will now have the correct DATA for the new MEMORY IC.

ELECTRICAL ADJUSTMENTS

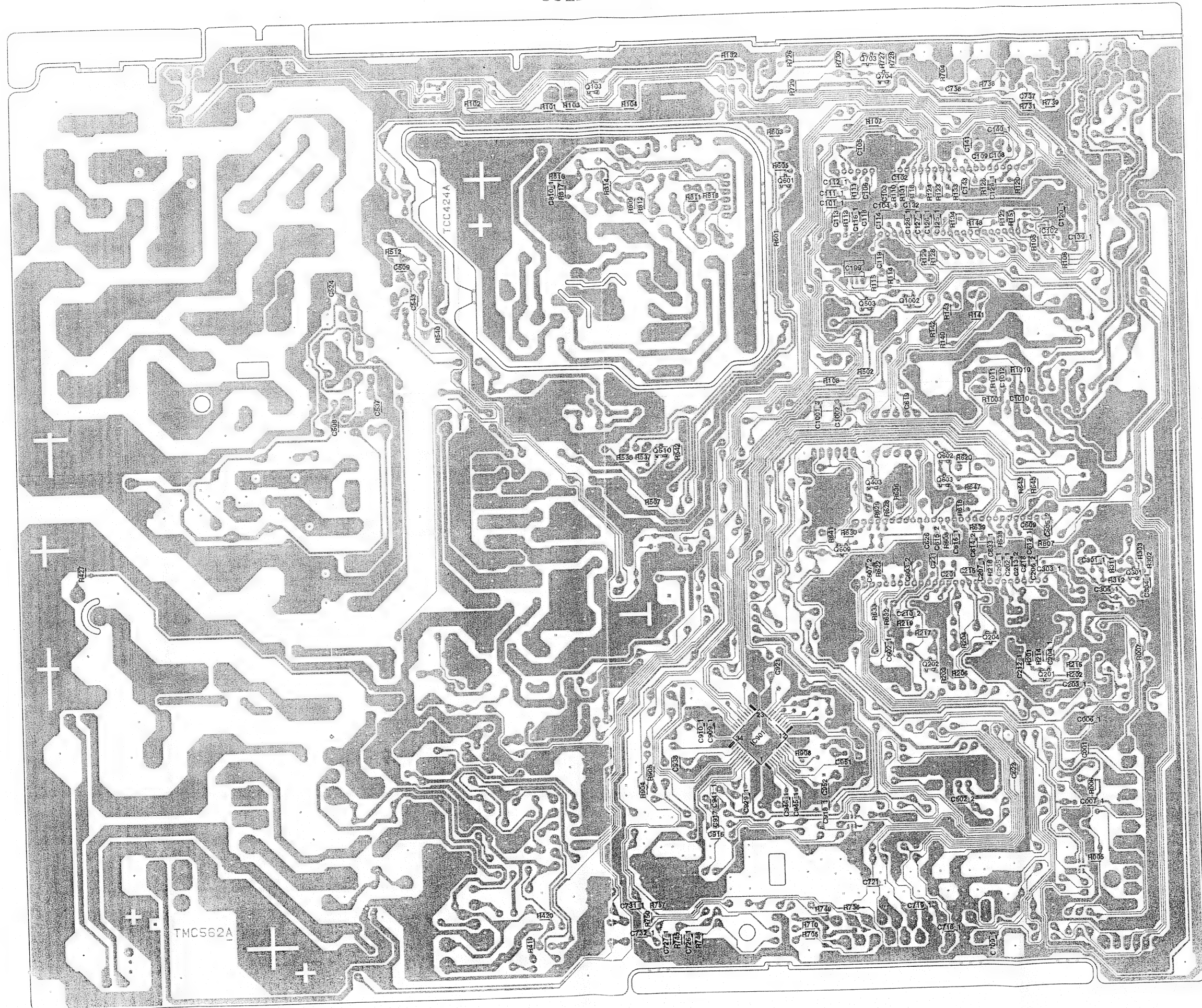
4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



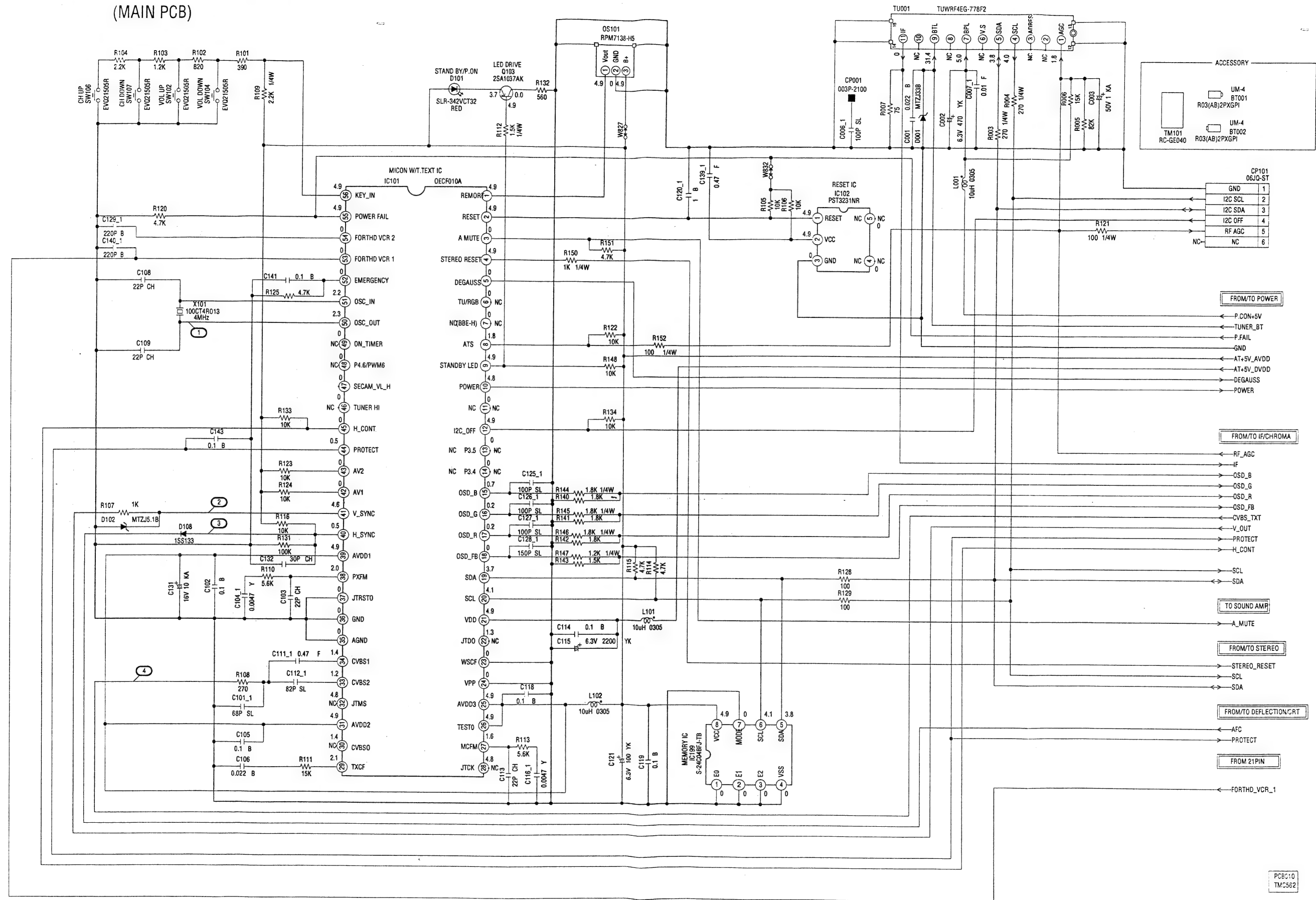
BLOCK DIAGRAM



PRINTED CIRCUIT BOARDS
MAIN/CRT (CHIP MOUNTED PARTS)
SOLDER SIDE



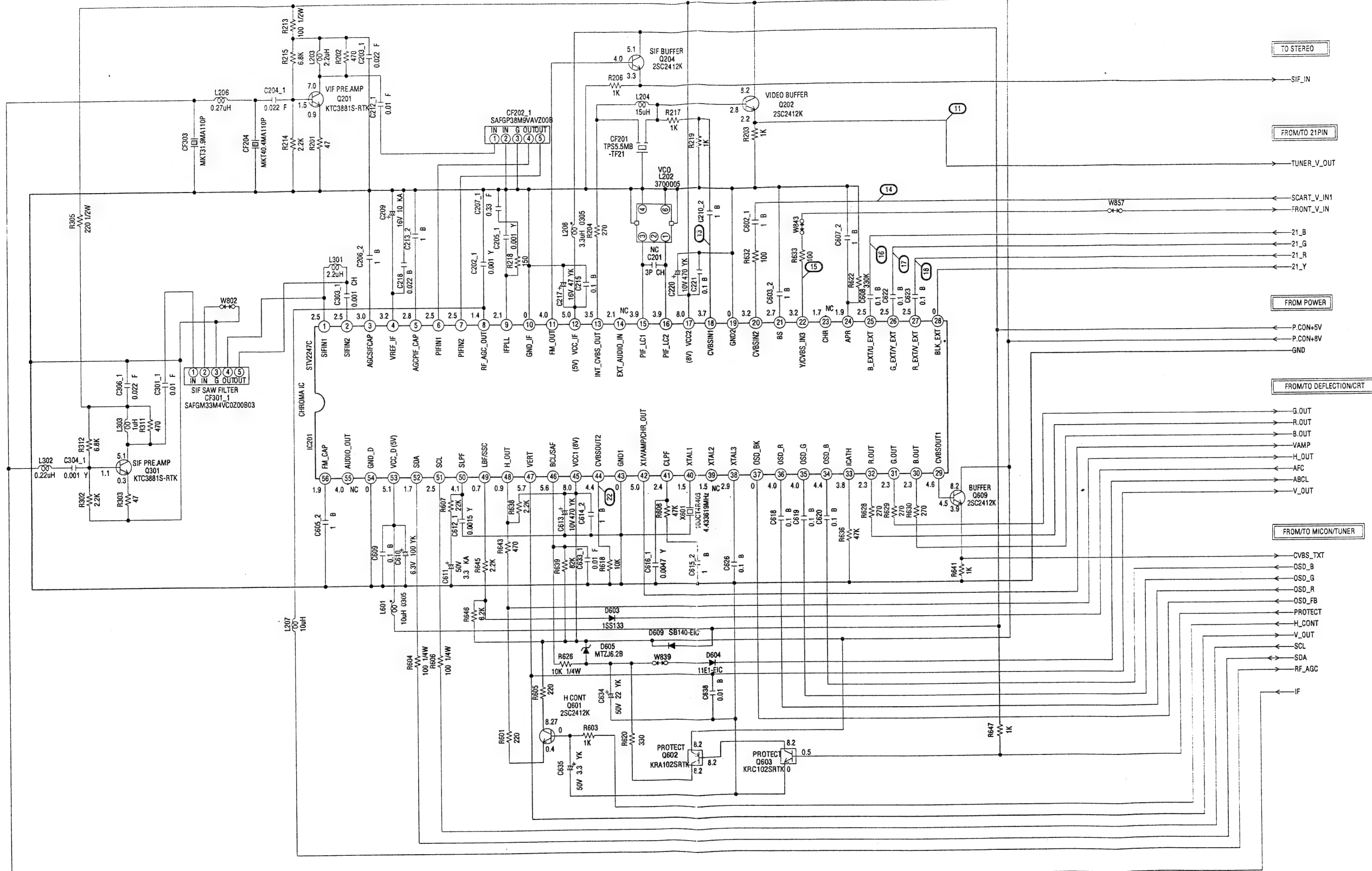
MICON/TUNER SCHEMATIC DIAGRAM



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

IF/CHROMA SCHEMATIC DIAGRAM (MAIN PCB)

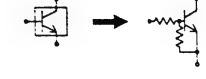
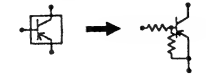


NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

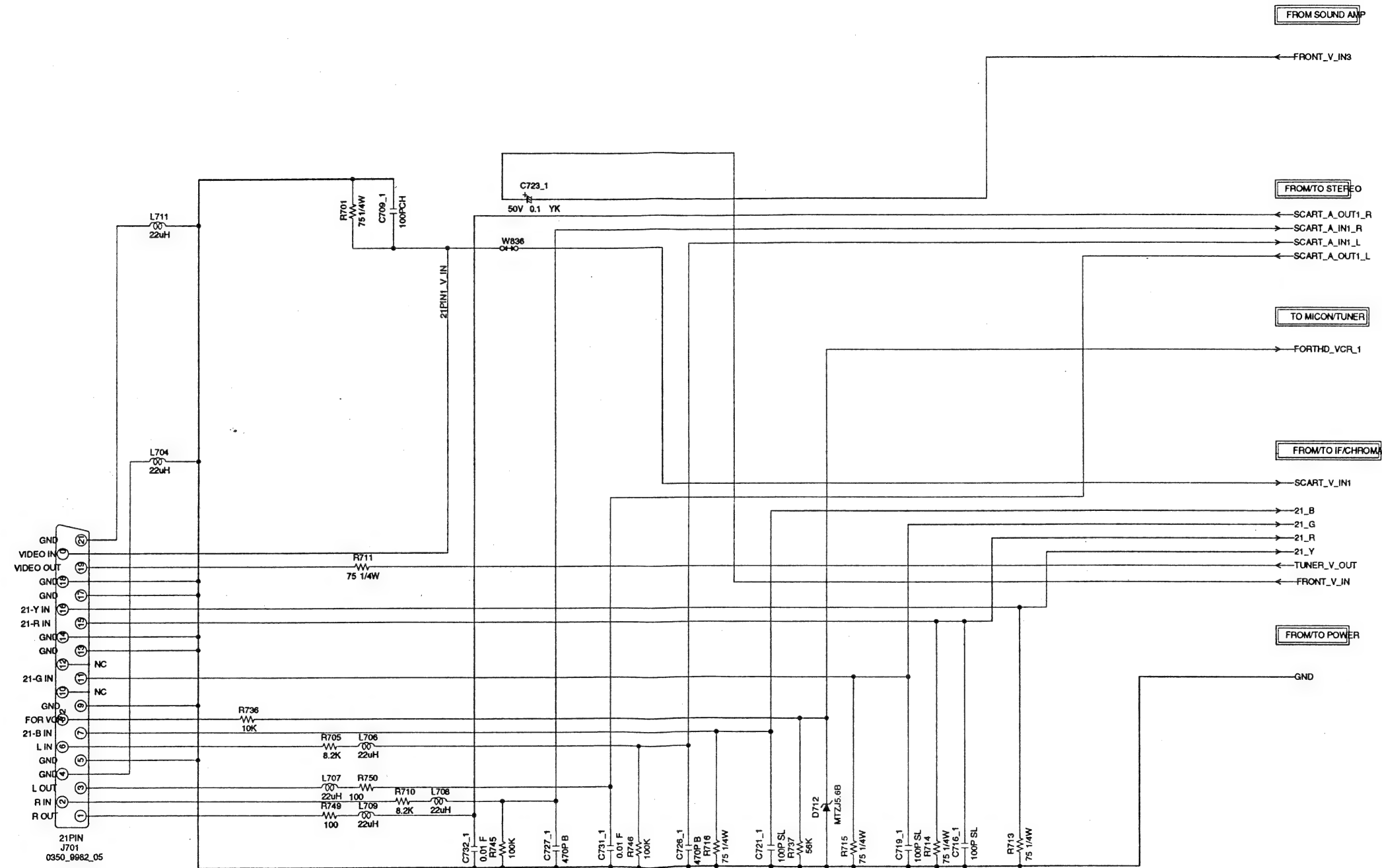
CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR



PCB010
TMC562

21PIN/AV SW SCHEMATIC DIAGRAM (MAIN PCB)

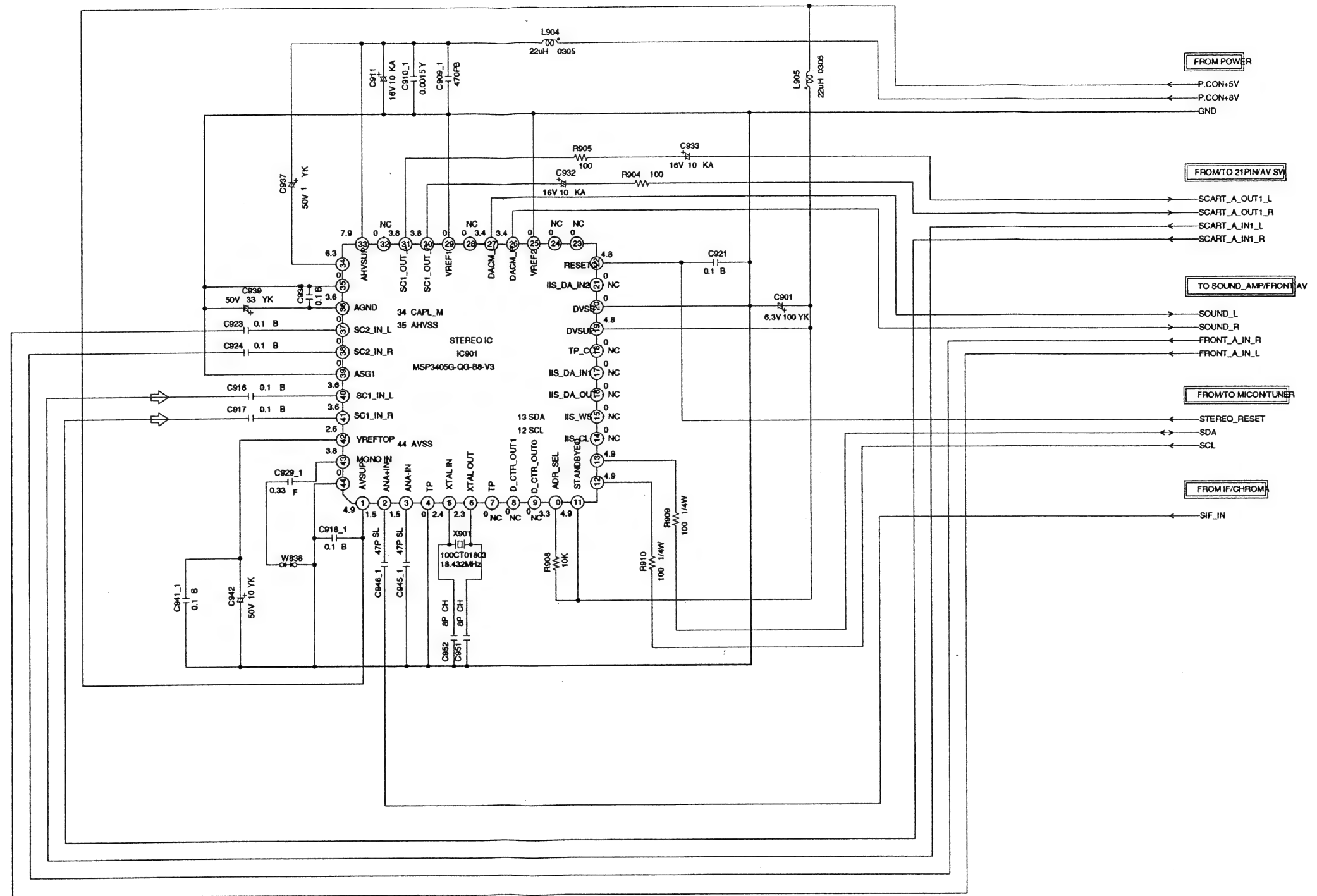


NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

PCB01D
TMC5d2

STEREO SCHEMATIC DIAGRAM (MAIN PCB)



NOTETHIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL

PCB010
TMC56C

SOUND AMP SCHEMATIC DIAGRAM
(MAIN PCB)

The schematic diagram illustrates the internal circuitry of the Sound Amp (Main PCB) centered around the AN5276 IC. Key components and connections include:

- Inputs:** FRONT_A_IN-R, FRONT_A_IN-L, SOUND-L, SOUND-R, and FRONT_V_INB.
- Power and Control:** FROM MICON/TUNER (A_MUTE), FROM POWER (SOUND+B, SOUND_GND, P.CON+8V, GND, P.FAIL, AT+5V_AVDD), and FROM/TO STEREO.
- IC Pins:** The AN5276 IC is shown with pins for NC, CH1 IN, RF, GND, CH2 IN, NC, CH2 OUT, MUTE, GND, VCC, STAND BY, and CH1 OUT.
- Filters and Buffers:** Includes ripple filters (C1001_3, C1002_3), buffers (Q703, Q704), and various capacitors (C1010, C1012, C1013, C1014, C1015).
- Resistors:** Various resistors are specified, including R1003, R1004, R1005, R1009, R1010, R1011, R1012, R1013, R1014, R1015, R1016, R1017, R1018, R1019, R1020, R1021, R1022, R1023, R1024, R1025, R1026, R1027, R1028, R1029, R1030, R1031, R1032, R1033, R1034, R1035, R1036, R1037, R1038, R1039, R1040, R1041, R1042, R1043, R1044, R1045, R1046, R1047, R1048, R1049, R1050, R1051, R1052, R1053, R1054, R1055, R1056, R1057, R1058, R1059, R1060, R1061, R1062, R1063, R1064, R1065, R1066, R1067, R1068, R1069, R1070, R1071, R1072, R1073, R1074, R1075, R1076, R1077, R1078, R1079, R1080, R1081, R1082, R1083, R1084, R1085, R1086, R1087, R1088, R1089, R1090, R1091, R1092, R1093, R1094, R1095, R1096, R1097, R1098, R1099, R1100, R1101, R1102, R1103, R1104, R1105, R1106, R1107, R1108, R1109, R1110, R1111, R1112, R1113, R1114, R1115, R1116, R1117, R1118, R1119, R1120, R1121, R1122, R1123, R1124, R1125, R1126, R1127, R1128, R1129, R1130, R1131, R1132, R1133, R1134, R1135, R1136, R1137, R1138, R1139, R1140, R1141, R1142, R1143, R1144, R1145, R1146, R1147, R1148, R1149, R1150, R1151, R1152, R1153, R1154, R1155, R1156, R1157, R1158, R1159, R1160, R1161, R1162, R1163, R1164, R1165, R1166, R1167, R1168, R1169, R1170, R1171, R1172, R1173, R1174, R1175, R1176, R1177, R1178, R1179, R1180, R1181, R1182, R1183, R1184, R1185, R1186, R1187, R1188, R1189, R1190, R1191, R1192, R1193, R1194, R1195, R1196, R1197, R1198, R1199, R1200, R1201, R1202, R1203, R1204, R1205, R1206, R1207, R1208, R1209, R1210, R1211, R1212, R1213, R1214, R1215, R1216, R1217, R1218, R1219, R1220, R1221, R1222, R1223, R1224, R1225, R1226, R1227, R1228, R1229, R1230, R1231, R1232, R1233, R1234, R1235, R1236, R1237, R1238, R1239, R1240, R1241, R1242, R1243, R1244, R1245, R1246, R1247, R1248, R1249, R1250, R1251, R1252, R1253, R1254, R1255, R1256, R1257, R1258, R1259, R1260, R1261, R1262, R1263, R1264, R1265, R1266, R1267, R1268, R1269, R1270, R1271, R1272, R1273, R1274, R1275, R1276, R1277, R1278, R1279, R1280, R1281, R1282, R1283, R1284, R1285, R1286, R1287, R1288, R1289, R1290, R1291, R1292, R1293, R1294, R1295, R1296, R1297, R1298, R1299, R1300, R1301, R1302, R1303, R1304, R1305, R1306, R1307, R1308, R1309, R1310, R1311, R1312, R1313, R1314, R1315, R1316, R1317, R1318, R1319, R1320, R1321, R1322, R1323, R1324, R1325, R1326, R1327, R1328, R1329, R1330, R1331, R1332, R1333, R1334, R1335, R1336, R1337, R1338, R1339, R1340, R1341, R1342, R1343, R1344, R1345, R1346, R1347, R1348, R1349, R1350, R1351, R1352, R1353, R1354, R1355, R1356, R1357, R1358, R1359, R1360, R1361, R1362, R1363, R1364, R1365, R1366, R1367, R1368, R1369, R1370, R1371, R1372, R1373, R1374, R1375, R1376, R1377, R1378, R1379, R1380, R1381, R1382, R1383, R1384, R1385, R1386, R1387, R1388, R1389, R1390, R1391, R1392, R1393, R1394, R1395, R1396, R1397, R1398, R1399, R1400, R1401, R1402, R1403, R1404, R1405, R1406, R1407, R1408, R1409, R1410, R1411, R1412, R1413, R1414, R1415, R1416, R1417, R1418, R1419, R1420, R1421, R1422, R1423, R1424, R1425, R1426, R1427, R1428, R1429, R1430, R1431, R1432, R1433, R1434, R1435, R1436, R1437, R1438, R1439, R1440, R1441, R1442, R1443, R1444, R1445, R1446, R1447, R1448, R1449, R1450, R1451, R1452, R1453, R1454, R1455, R1456, R1457, R1458, R1459, R1460, R1461, R1462, R1463, R1464, R1465, R1466, R1467, R1468, R1469, R1470, R1471, R1472, R1473, R1474, R1475, R1476, R1477, R1478, R1479, R1480, R1481, R1482, R1483, R1484, R1485, R1486, R1487, R1488, R1489, R1490, R1491, R1492, R1493, R1494, R1495, R1496, R1497, R1498, R1499, R1500, R1501, R1502, R1503, R1504, R1505, R1506, R1507, R1508, R1509, R1510, R1511, R1512, R1513, R1514, R1515, R1516, R1517, R1518, R1519, R1520, R1521, R1522, R1523, R1524, R1525, R1526, R1527, R1528, R1529, R1530, R1531, R1532, R1533, R1534, R1535, R1536, R1537, R1538, R1539, R1540, R1541, R1542, R1543, R1544, R1545, R1546, R1547, R1548, R1549, R1550, R1551, R1552, R1553, R1554, R1555, R1556, R1557, R1558, R1559, R1560, R1561, R1562, R1563, R1564, R1565, R1566, R1567, R1568, R1569, R1570, R1571, R1572, R1573, R1574, R1575, R1576, R1577, R1578, R1579, R1580, R1581, R1582, R1583, R1584, R1585, R1586, R1587, R1588, R1589, R1590, R1591, R1592, R1593, R1594, R1595, R1596, R1597, R1598, R1599, R1600, R1601, R1602, R1603, R1604, R1605, R1606, R1607, R1608, R1609, R1610, R1611, R1612, R1613, R1614, R1615, R1616, R1617, R1618, R1619, R1620, R1621, R1622, R1623, R1624, R1625, R1626, R1627, R1628,

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

DEFLECTION/CRT SCHEMATIC DIAGRAM

FROM TO IF/CHROMA

B.OUT
R.OUT
G.OUT
AFG
V.OFF
ABCL
H.OUT

FROM TO MICONTUNER

PROTECT
AFG

FROM POWER

GND
P.CON+8V
H.DRV+B
+B

PCB010
TMC562

CP802A B2013H02-6P

GND
CUT OFF
B.OUT
R.OUT
G.OUT
PROTECT

CP802B B2013H02-6P

GND
CUT OFF
B.OUT
R.OUT
G.OUT
PROTECT

CP803A B2013H02-4P

180V
NC
GND
HEATER

CP803B B2013H02-4P

180V
NC
GND
HEATER

CD801.1
SM1642-001

1 GND
2 GND

CP801.1
A2361WV2-2P

1 GND
2 GND

CP401
A1561WV2-AS

1 NO
2 NC
3 NO
4 NC
5 NO
6 NC
7 NO
8 NC
9 NO
10 NC

V801
A51QAE320X 47(P)

1 G
2 R
3 B
4 G
5 R
6 B
7 G
8 R
9 B
10 G

L403
20416A

1 NO
2 NC
3 NO
4 NC
5 NO
6 NC
7 NO
8 NC
9 NO
10 NC

FOCUS
SCREEN

1 NO
2 NC
3 NO
4 NC
5 NO
6 NC
7 NO
8 NC
9 NO
10 NC

FOCUS
SCREEN

1 NO
2 NC
3 NO
4 NC
5 NO
6 NC
7 NO
8 NC
9 NO
10 NC

FOCUS
SCREEN

1 NO
2 NC
3 NO
4 NC
5 NO
6 NC
7 NO
8 NC
9 NO
10 NC

FOCUS
SCREEN

1 NO
2 NC
3 NO
4 NC
5 NO
6 NC
7 NO
8 NC
9 NO
10 NC

FOCUS
SCREEN

1 NO
2 NC
3 NO
4 NC
5 NO
6 NC
7 NO
8 NC
9 NO
10 NC

FOCUS
SCREEN

1 NO
2 NC
3 NO
4 NC
5 NO
6 NC
7 NO
8 NC
9 NO
10 NC

FOCUS
SCREEN

ATTENTION: LES PIÈCES RÉPARÉES PAR UN
DANGEREUSES AN POINT DE VUE SECURITE
N'UTILISER QUE CELLES DECRITES
DANS LA NOMENCLATURE DES RIECES

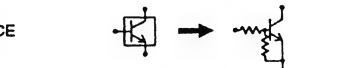
CAUTION: SINCE THESE PARTS MARKED ARE
CRITICAL FOR SAFETY, USE ONES
DESCRIBED IN PARTS LIST ONLY

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

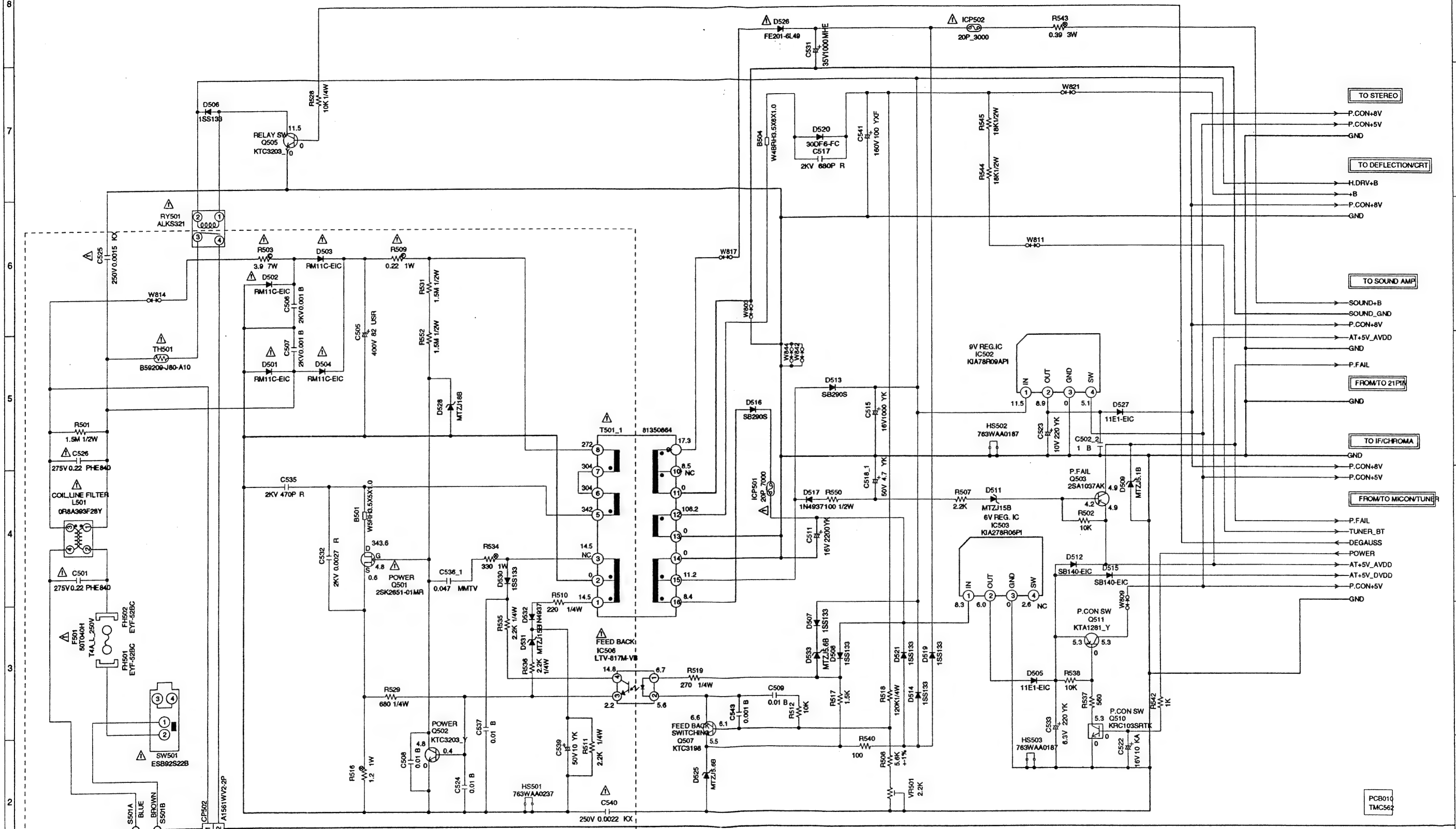
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP
IS NON POLAR ONE.

CAUTION: DIGITAL TRANSISTOR



POWER SCHEMATIC DIAGRAM (MAIN PCB)



- TO STEREO
 - P.CON+8V
 - P.CON+5V
 - GND
- TO DEFLECTION/CRT
 - H.DRV+B
 - B
 - P.CON+8V
 - GND
- TO SOUND AMP
 - SOUND+B
 - SOUND_GND
 - P.CON+8V
 - AT+5V_AVDD
 - GND
 - P.FAIL
- FROM TO 21PIN
 - GND
 - P.CON+8V
 - P.CON+5V
- TO IF/C/ROMA
 - GND
 - P.CON+8V
 - P.CON+5V
- FROM TO MICONTUNER
 - P.FAIL
 - TUNER_BT
 - DEGAUSS
 - POWER
 - AT+5V_AVDD
 - AT+5V_DVDD
 - P.CON+5V
 - GND

PCB010
TMC562

CAUTION THESE PARTS MARKED ARE CRITICAL FOR SAFETY. USE ONES DESCRIBED IN PARTS LIST ONLY

ATTENTION CES PIÈCES MARQUÉES SONT CRITIQUES D'UN POINT DE VUE SÉCURITÉ. N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES

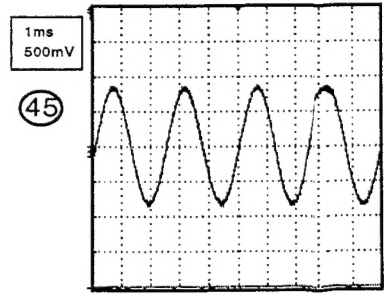
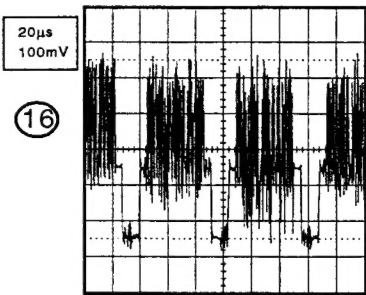
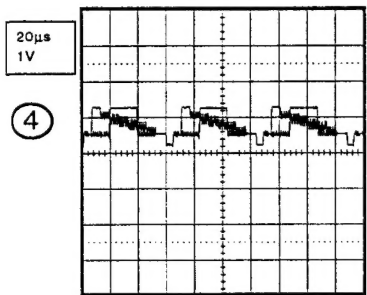
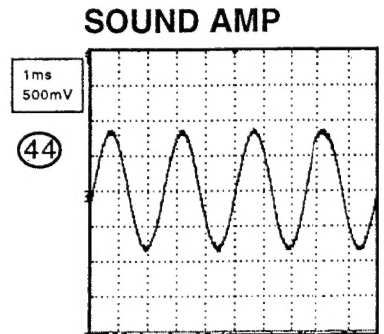
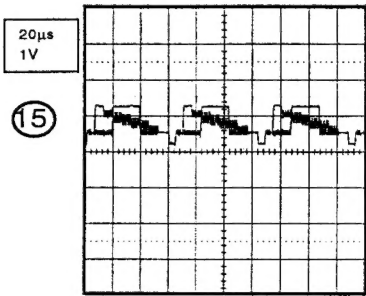
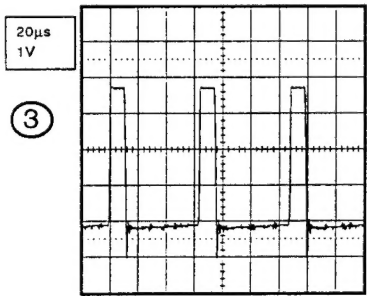
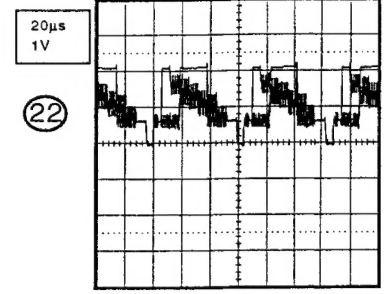
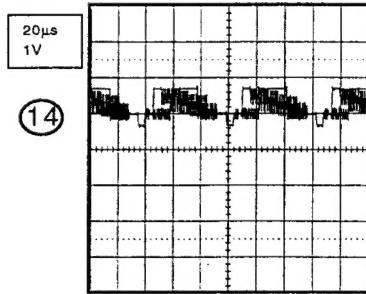
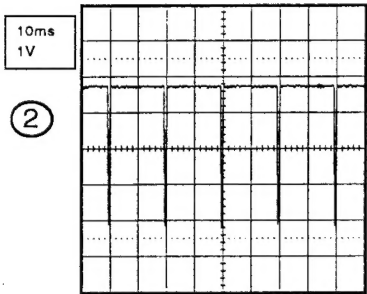
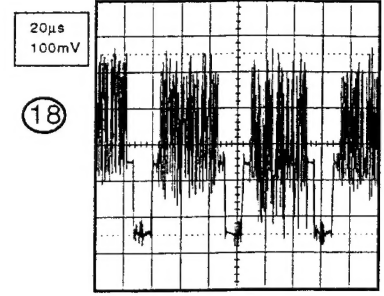
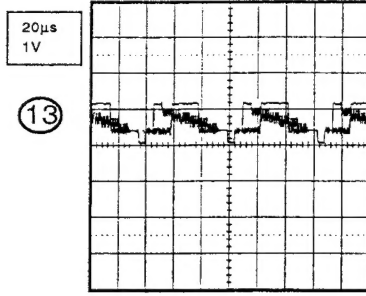
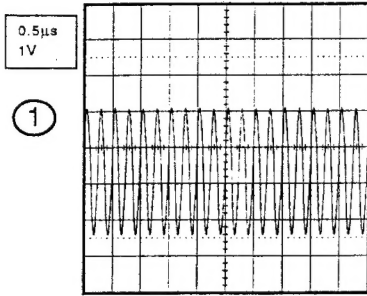
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

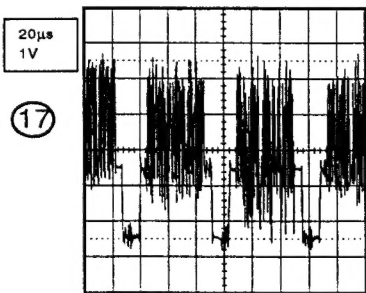
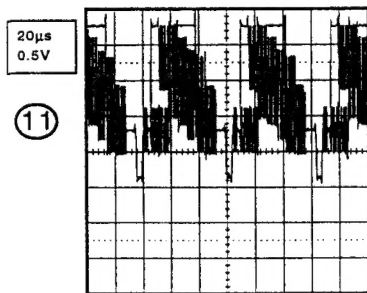
CAUTION: DIGITAL TRANSISTOR

WAVEFORMS

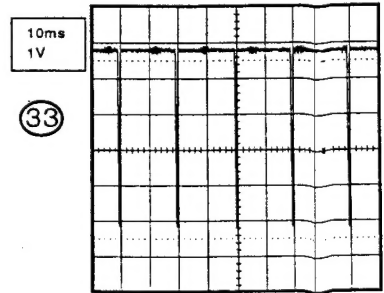
MICON/TUNER



IF/CHROMA

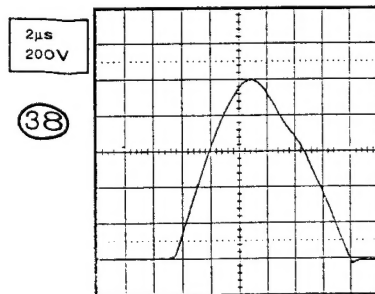
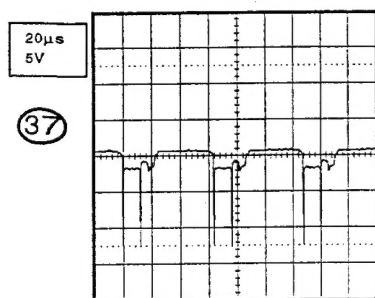
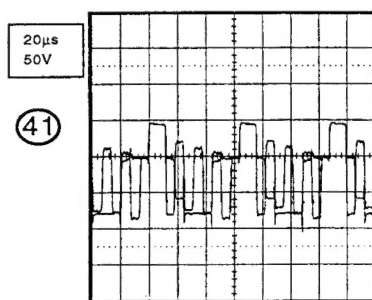
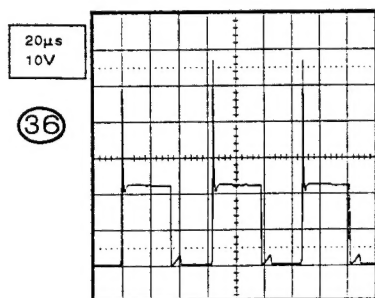
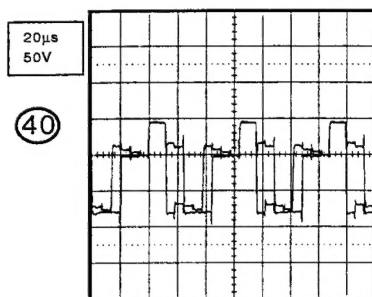
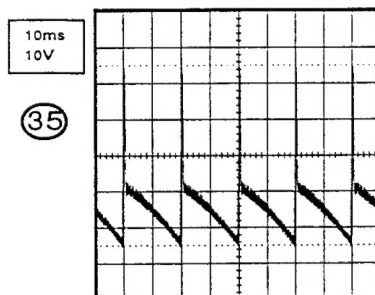
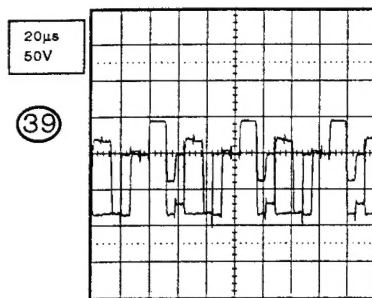
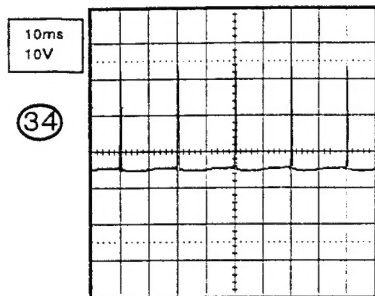


DEFLECTION/CRT



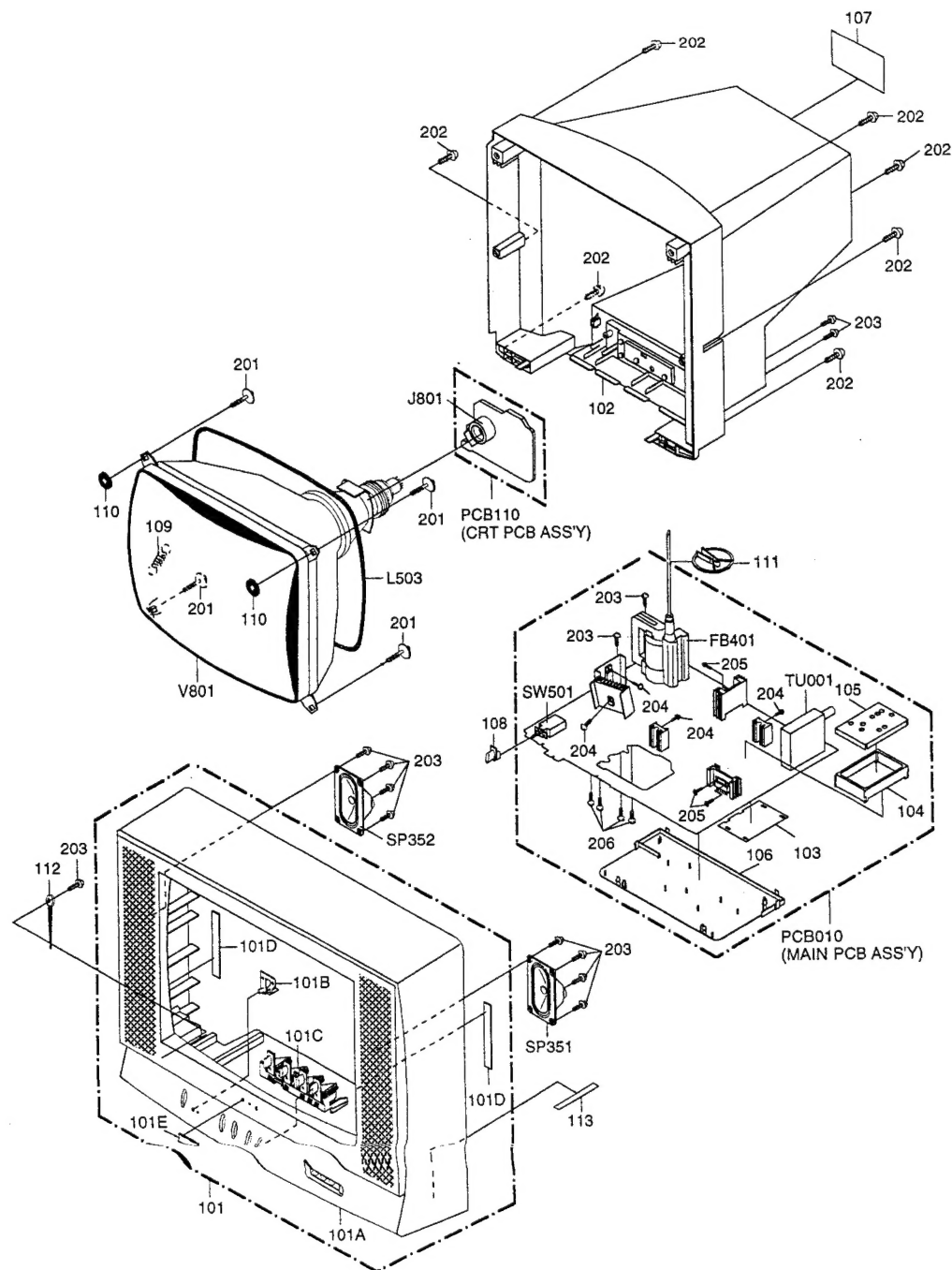
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS



NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

MECHANICAL EXPLODED VIEW



MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
101	A3M502K720	CABINET,FRONT ASSY		
101A	701WPA0068	CABINET,FRONT		
101B	713WPA0205	GUIDE,REMOCON		
101C	735WPA590	BUTTON,FRAME		
101D	800WQ00045	FELT SHEET	5x150xT0.5	
101E	7232020561	BADGE,BRAND		
102	A3M502K740	CABINET,BACK ASSY		
103	752WSAA006	PLATE,SHIELD		
104	752WSAA008	SHIELD,CASE		
105	752WSAA013	SHIELD,LID		
106	755WPAAD15	COVER PCB		
107	722202A682	SHEET,RATING		
108	735WPA506	BUTTON,POWER		
109	741WUA0001	SPRING,EARTH		
110	800WRDA003	SHEET,CRT SUPPORT		
111	899HV3T000	HOLDER,ANODE WIRE		
112	8995034000	CORD CLIP UL CO.		
113	7220001027	SHEET,PTB		
201	8111J50D05	SCREW,TAPPING(A)	GW22	5x35
202	8117540A64	SCREW,TAPPING(B0)	TRUSS	4x16
203	8110630A04	SCREW,TAP TITE(P)	BRAZIER	3x10
203	8110630A04	SCREW,TAP TITE(P)	BRAZIER	3x10
204	8109130A04	SCREW,TAP TITE(B)	WH7	3x10
205	8107630804	SCREW,TAP TITE(S)	BRAZIER	3x8
206	8109630802	SCREW,TAP TITE(B)	BRAZIER	3x8
---	791MHA0004	LAMIFILM BAG		
---	792UHAA039	PACKAGE,TOP		
---	792UHAA040	PACKAGE,BOTTOM		
---	793UCDB102	GIFT BOX		
---	JB5X0100	POLYBAG,INSTRUCTION		
---	J3M50201A	INSTRUCTION BOOK		
---	A3M502D975	INSTRUCTION BOOK KIT		

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
RESISTORS			DIODES		
Δ R402	R3X18A181J	R,METAL OXIDE 180 OHM 2W	D530	D1VT001330	DIODE,SILICON 1SS133T-77
Δ R410	R3X181221J	R,METAL OXIDE 220 OHM 1W	D531	D97U01501B	DIODE,ZENER MTZJ15B T-77
Δ R411	R635U2680J	R,FUSE 68 OHM 1/2W	D532	D2WXM49370	DIODE,SILICON 1N4937
Δ R424	R3X181102J	R,METAL OXIDE 1K OHM 1W	D533	D97U05R61B	DIODE,ZENER MTZJ5.6B T-77
Δ R501	R002T2155J	RC 1.5M OHM 1/2W	D603	D1VT001330	DIODE,SILICON 1SS133T-77
Δ R503	RSY2CE3R9J	R,CEMENT 3.9 OHM 7W	D604	D2W7011E10	DIODE,SILICON 11E1-EIC
Δ R509	R635B1R22J	R,FUSE 0.22 OHM 1W	D605	D97U06R21B	DIODE,ZENER MTZJ6.2B T-77
Δ R516	R3X1811R2J	R,METAL OXIDE 1.2 OHM 1W	D609	D2WXS81400	DIODE,SCHOTTKY SB140-EIC
Δ R534	R3X181331J	R,METAL OXIDE 330 OHM 1W	D712	D97U05R61B	DIODE,ZENER MTZJ5.6B T-77
Δ R543	R3X22B8R39J	R,METAL OXIDE 0.39 OHM 3W	D804	D1VT001330	DIODE,SILICON 1SS133T-77
Δ R803	R3X18A153J	R,METAL OXIDE 15K OHM 2W	D805	D1VT001330	DIODE,SILICON 1SS133T-77
Δ R805	R3X18A153J	R,METAL OXIDE 15K OHM 2W	D806	D1VT001330	DIODE,SILICON 1SS133T-77
Δ R807	R3X18A153J	R,METAL OXIDE 15K OHM 2W	D1001	D1VT001330	DIODE,SILICON 1SS133T-77
Δ R819	R635B44R7J	R,FUSE 4.7 OHM 2W	ICS		
CAPACITORS			IC101	I5PD0F010A	IC OECF010A
Δ C414	E02L4U101M	CE 100 UF 35V	IC102	I9UF032310	IC PST3231NR
C418	E02LF3102M	CE 1000 UF 25V	IC199	A3M502D015	IC S-24C04BFJ-TB
C437	P4J7F3334J	CMPP 0.33 UF 250V PMS	IC201	I0WDE2247C	IC STV2247C
C442	P4N8FJ862H	CMPP 0.0086UF 1.25KV	Δ IC401	I0WTD81740	IC TDA8174A
Δ C446	E02L5U220M	CE 22 UF 50V	IC502	I1KA98R09A	IC KIA78R09API
Δ C448	E0ELFD220M	CE 22 UF 250V	IC503	I1KA98R060	IC KIA278R06PI
Δ C501	P2472B224M	CMP 0.22UF 275V PHE840	Δ IC506	0002E00610	PHOTO COUPLER LTV-817M-VB
C505	E52DHH820M	CE 82 UF 400V	IC901	I19FF3405G	IC MSP3405G-QG-BB-V3
C506	CQJBB0713K	CC 0.001 UF 2KV B	IC1002	I0FSP52760	IC AN5276
C507	CQJBB0713K	CC 0.001 UF 2KV B	TRANSISTORS		
C511	E02LF2222M	CE 2200 UF 16V	Q103	T6YJ1037K0	TRANSISTOR,SILICON 2SA1037AKT146R,S
C517	C03L0R7U2K	CC 680 PF 2KV R	Q201	T8AA038815	TRANSISTOR SILICON KTC3881S-RTK
Δ C525	CD39E0ME3M	CC 0.0015UF 250V	Q202	T8YJ2412K0	TRANSISTOR SILICON 2SC2412KT146 R,S
Δ C526	CD39E0M13M	CC 0.001 UF 250V	Q204	T8YJ2412K0	TRANSISTOR SILICON 2SC2412KT146 R,S
Δ C528	P2472B224M	CMP 0.22UF 275V PHE840	Q301	T8AA038815	TRANSISTOR SILICON KTC3881S-RTK
Δ C531	E5EZF4102M	CE 1000 UF 35V	Q401	DU0U024990	TRANSISTOR SILICON 2SD2499(LBOEC1)
C532	C03L0R7K3K	CC 0.0027UF 2KV R	Q402	TC0T1627Y	TRANSISTOR SILICON 2SC1627_Y(TPE2)
C535	C0PLR7Q2K	CC 470 PF 2KV R	Q403	TNAA805003	COMPOUND TRANSISTOR KRC102SRTK
C540	C039E0MH3M	CC 0.0022UF 250V	Δ Q501	T41F026510	TRANSISTOR FIELD EFF ECT 2SK2651-01MR
C540	C03L0R7H3K	CC 0.0022UF 2KV R	Δ Q502	TCAT032034	TRANSISTOR, SILICON KTC3203_Y-AT
C541	E62NFB101M	CC 100 UF 160V	Q503	T6YJ1037K0	TRANSISTOR, SILICON 2SA1037AKT146R,S
C802	CQJBB0713K	CC 0.001 UF 2KV B	Q505	TCAT032034	TRANSISTOR, SILICON KTC3203_Y-AT
C1009	E02LF3102M	CE 1000 UF 25V	Q507	TCATC31980	TRANSISTOR,SILICON KTC3198-AT(Y,GR)
C1014	E02L03222M	CE 2200 UF 25V	Q510	TNAA050002	COMPOUND TRANSISTOR KRC103SRTK
C1015	E02LF3102M	CE 1000 UF 25V	Q511	TAAT01281Y	TRANSISTOR SILICON KTA1281_Y
DIODES			Q601	T8YJ2412K0	TRANSISTOR SILICON 2SC2412KT146 R,S
D001	D97U03301B	DIODE,ZENER MTZJ33B T-77	Q602	TPAA805001	COMPOUND TRANSISTOR KRA102SRTK
D101	0021721150	LED SLR-34VCT32	Q603	TNAA805003	COMPOUND TRANSISTOR KRC102SRTK
D102	D97U05R11B	DIODE,ZENER MTZJ5.1B T-77	Q609	T8YJ2412K0	TRANSISTOR SILICON 2SC2412KT146 R,S
D108	D1VT001330	DIODE,SILICON 1SS133T-77	Q703	T8YJ2412K0	TRANSISTOR SILICON 2SC2412KT146 R,S
D401	D97U03001B	DIODE,ZENER MTZJ30B T-77	Q704	T8YJ2412K0	TRANSISTOR SILICON 2SC2412KT146 R,S
D402	D97U03001B	DIODE,ZENER MTZJ30B T-77	Δ Q804	TCA0042170	TRANSISTOR SILICON KTC4217(O,Y)
D403	D2W7011E10	DIODE,SILICON 11E1-EIC	Δ Q805	TCA0042170	TRANSISTOR SILICON KTC4217(O,Y)
D404	D2W7011E10	DIODE,SILICON 11E1-EIC	Δ Q806	TCA0042170	TRANSISTOR SILICON KTC4217(O,Y)
Δ D405	D2W7011E10	DIODE,SILICON 11E1-EIC	Q1002	TPAA050002	COMPOUND TRANSISTOR KRA103SRTK
D406	D2W7011E10	DIODE,SILICON 11E1-EIC	COILS & TRANSFORMERS		
D407	D2W7011E10	DIODE,SILICON 11E1-EIC	L001	02167F100J	COIL 10 UH
D408	D28XQ504N0	DIODE SCHOTTKY 11EQS04N-TA2B5	L101	02167F100J	COIL 10 UH
Δ D410	D2W7011E10	DIODE,SILICON 11E1-EIC	L102	02167F100J	COIL 10 UH
Δ D501	D2WTRM11C0	DIODE,SILICON RM11C-EIC	L202	033700005R	COIL,VIDEO IFT 3700005
D502	D2WTRM11C0	DIODE,SILICON RM11C-EIC	L203	0216A62R2K	COIL 2.2 UH
Δ D503	D2WTRM11C0	DIODE,SILICON RM11C-EIC	L204	0216A6150K	COIL 15 UH
Δ D504	D2WTRM11C0	DIODE,SILICON RM11C-EIC	L206	0216A6R27M	COIL 0.27 UH
D505	D2W7011E10	DIODE,SILICON 11E1-EIC	L207	0216A6100J	COIL 10 UH
D506	D1VT001330	DIODE,SILICON 1SS133T-77	L208	02167F3R3J	COIL 3.3 UH
D507	D1VT001330	DIODE,SILICON 1SS133T-77	L301	0216A62R2K	COIL 2.2 UH
D508	D1VT001330	DIODE,SILICON 1SS133T-77	L302	0216A6R2K	COIL 0.22 UH
D509	D97U05R11B	DIODE,ZENER MTZJ5.1B T-77	L303	0216A61R0K	COIL 1 UH
D511	D97U01501B	DIODE,ZENER MTZJ15B T-77	L401	021679472K	COIL 4.7 MH
D512	D2WXS81400	DIODE,SCHOTTKY SB140-EIC	L403	022800033A	COIL,LINEARITY 20416A
D513	D2WXB290S0	DIODE,SILICON SB290S	Δ L501	0297000091	COIL,LINE FILTER 0R8A393F28Y
D514	D1VT001330	DIODE,SILICON 1SS133T-77	Δ L503	028R200015	COIL,DEGAUSS 8R200015
D515	D2WXS81400	DIODE,SCHOTTKY SB140-EIC	L504	02AHB9A972	COIL,FERRITE W5T29X7.5X19
D516	D2WXB290S0	DIODE,SILICON SB290S	L601	02167F100J	COIL 10 UH
D517	D2WXM49370	DIODE,SILICON 1N4937	L704	0216A6220J	COIL 22 UH
D519	D1VT001330	DIODE,SILICON 1SS133T-77	L706	0216A6220J	COIL 22 UH
D520	D28F30DF60	DIODE RECTIFIER 300F6-FC	L707	0216A6220J	COIL 22 UH
D521	D1VT001330	DIODE,SILICON 1SS133T-77	L708	0216A6220J	COIL 22 UH
D525	D97U05R61B	DIODE,ZENER MTZJ5.6B T-77	L709	0216A6220J	COIL 22 UH
D526	D2CF2018L0	DIODE,SILICON FE201-8L49	L711	0216A6220J	COIL 22 UH
D527	D2W7011E10	DIODE,SILICON 11E1-EIC	L715	0216A6100J	COIL 10 UH
D528	D2W7011E10	DIODE,SILICON 11E1-EIC	L716	0216A6100J	COIL 10 UH

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
COILS & TRANSFORMERS		
L801	02167F151J	COIL 150 UH
L904	02167F220J	COIL 22 UH
L905	02167F220J	COIL 22 UH
T401	045009003J	TRANS,HORIZONTAL DRIVE ETH09K14BZ
Δ T501	0481350864	TRANSFORMER,SWITCHING 81350864
JACKS		
J701	063G100042	SOCKET,21PIN 0350_9982_05
J703	060J421029	RCA JACK MSP-281V4-A PBSN
J704	060J421027	RCA JACK MSP-281V1-A PBSN
J705	060J421028	RCA JACK MSP-281V3-A PBSN
Δ J801	066F130020	SOCKET,CATHODE RAY,TUBE ISHS53S
SWITCHES		
SW102	0504101134	SWITCH,TACT EVQ21505R
SW104	0504101134	SWITCH,TACT EVQ21505R
SW106	0504101134	SWITCH,TACT EVQ21505R
SW107	0504101134	SWITCH,TACT EVQ21505R
Δ SW501	0530105019	SWITCH ESB92S22B
VARIABLE RESISTORS		
VR401	V1163138TB	VOLUME,SEMI FIXED EVNDXAA03B13
VR420	V1K62Q28TB	VOLUME,SEMI FIXED NVG6THTB471
VR501	V1163H38TC	VOLUME,SEMI FIXED EVNXYAA03BE3
P.C. BOARD ASSEMBLIES		
PCB010	A3M502K010K	PCB ASS'Y TMC562A
PCB110	A3M502K110K	PCB ASS'Y TCC424A
MISCELLANEOUS		
B501	024HT03553	CORE,BEADS W5RH3.5X5X1.0
B504	024HT03564	CORE,BEADS W4BRH3.5X6X1.0
BT001	1412004013	BATTERY,MANGAN R03(AB)2PXGPI
BT002	1412004013	BATTERY,MANGAN R03(AB)2PXGPI
Δ CD501	1208459803	CORD AC BUSH 06459803
CD801	1276210014	BRAIDED WIRE SM1642-001
CD802	WDL6042038	FLAT CABLE AWM2468 AWG26 6C BLACK 420MM
CD803	WBL6034038	FLAT CABLE AWM2468 AWG26 4C BLACK 340MM
CF201	1012T5R503	FILTER,CERAMIC TRAP TPSS.5MB-TF21
CF202	1022038R9F	FILTER,SAW SAFGP38M9VAVZ00B
CF204	1012T04001	FILTER,CERAMIC TRAP MKT40.4MA110P-TF
CF301	1022133R41	FILTER,SAW SAFGM33M4VCOZ00B03
CF303	1012T03101	FILTER CERAMIC TRAP MKT31.9MA110P-TF
CP001	069W01001A	CONNECTOR PCB SIDE 003P-2100
CP101	069X160379	CONNECTOR PCB SIDE 06JQ-ST
CP401	069S450089	CONNECTOR PCB SIDE A1561WV2-A5P
CP502	069S420110	CONNECTOR PCB SIDE A1561WV2-2P
CP503	069S320010	CONNECTOR PCB SIDE A2361WV2-2P
CD1001	06CH149002	CORD CONNECTOR CH149002
CP1001	089S140419	CONNECTOR PCB SIDE A2502WV2-4P
CP802A	067U006049	WIRE HOLDER B2013H02-6P
CP802B	067U006049	WIRE HOLDER B2013H02-6P
CP803A	067U004029	WIRE HOLDER B2013H02-4P
CP803B	067U004029	WIRE HOLDER B2013H02-4P
CUS012	800WFAA008	CUSHION C
EL001	124116281A	EYE LET XRY16X28BD
EL002	124120301A	EYE LET XRY20X30BD
Δ F501	080NT04004	FUSE 50T040H
Δ FB401	043221012F	TRANSFORMER,FLYBACK 3221012F
FH501	06710T0006	HOLDER,FUSE EYF-52BC
FH502	06710T0006	HOLDER,FUSE EYF-52BC
ICP501	0845T07003	IC PROTECTOR 20P_7000
ICP502	0845T03003	IC PROTECTOR 20P_3000
OS101	0773071001	REMOTE RECEIVER RPM7138-H5
RY501	0560V20115	RELAY ALKS321
SP351	070C546004	SPEAKER SG04H02BRA
SP352	070C546004	SPEAKER SG04H02BRA
Δ TH501	D8E080A100	DEGAUSS ELEMENT B59209-J80-A10
TM101	076N0GE040	TRANSMITTER RC-GE040
TU001	0145517008	TUNER,VHF-UHF TUWRF4EG-778F2
Δ V801	098N210446	CRT W/DY A51QAE320X 47(P)
X101	100CT4R013	CRYSTAL HC-49U-S
X601	100CT4R408	CRYSTAL HC-49U-S
X901	100CT01803	CRYSTAL HC-49U-S

RESISTOR
RC..... CARBON RESISTOR

CAPACITORS
CC..... CERAMIC CAPACITOR
CE..... ALUMI ELECTROLYTIC CAPACITOR
CP..... POLYESTER CAPACITOR
CPP..... POLYPROPYLENE CAPACITOR
CPL..... PLASTIC CAPACITOR
CMP..... METAL POLYESTER CAPACITOR
CML..... METAL PLASTIC CAPACITOR
CMPP..... METAL POLYPROPYLENE CAPACITOR